

On page 30 above line 1, insert --We claim:--

## **CLAIM AMENDMENTS**

Amended claims: 1-16

1. (Currently Amended) A reactor ~~Reactor~~ vessel for performing a steam reforming reaction comprising:

[[ -]] a vessel inlet for natural gas and steam,

[[ -]] a vessel inlet for a hot gaseous medium,

[[ -]] a vessel outlet for a gaseous product comprising the steam reforming product[[ ,]]; and

[[ -]] a reactor space having a reactor space inlet and a reactor space outlet end, the reactor space comprising of a bed of steam reforming catalyst, which the reactor space inlet is being fluidly connected to the inlet for natural gas and steam, and at its the reactor space outlet end being fluidly connected with the outlet for the gaseous product[[ ,]];

wherein inside the catalyst bed a passageway is ~~provided fluidly connected~~ fluidly connects to the vessel inlet for the hot gaseous medium, the passageway being suitable for passage of hot gaseous mixture counter currently to the a flow of reactants in the catalyst bed.

2. (Currently Amended) The reactor of ~~Reactor according to~~ claim 1, wherein the reactor space is defined by one or more reactor tubes filled with a bed of steam reforming catalyst and wherein said reactor tube comprises one or more passageway(s) running parallel to the axis of said reactor tube.

3. (Currently Amended) The reactor of ~~Reactor according to~~ claim 2, wherein the passageway is suitable for passing steam reforming product exiting from the reactor tube, the vessel hot gaseous medium from its vessel inlet are both in fluid communication with the inlet of the passageways such that in use a mixture of the hot gaseous medium and the steam reforming product passes through said passageway.

4. (Currently Amended) ~~The reactor~~ Reactor according to any one of claims 1 ~~1~~ ~~[-3]~~, wherein the each passageway is comprises a tube made from a metal alloy, wherein the metal alloy comprises from 0 wt% ~~and up to~~ 7 wt% iron, between 0 wt% and 5 wt% ~~aluminium~~ aluminum, from 0 wt% ~~up to~~ 5 wt% silicon, from 20 wt% ~~up to~~ 50 wt% chromium and at least 35 wt% nickel, wherein the nickel content balances the total to 100%.

5. (Currently Amended) ~~A process~~ Process for the preparation of hydrogen and carbon monoxide containing gas from a carbonaceous feedstock ~~said process comprising by performing the following steps:~~

- (a) ~~partial-oxidation~~ partially oxidizing of a carbonaceous feedstock thereby obtaining an effluent comprising a first gaseous mixture of hydrogen and carbon monoxide, and
- (b) ~~catalytic~~ catalytically steam reforming a carbonaceous feedstock to thereby obtain a steam reformer product, which catalytic steam reforming is carried out in a Convective Steam-Reformer convective steam reformer comprising a tubular reactor provided with a plurality of parallel positioned steam reformer reactor tubes containing a reforming catalyst, wherein the required and heat for the steam reforming reaction is provided by convective heat exchange between the steam reformer reactor tubes and ~~[[a]]~~ one or more passageway passageways positioned within and along the axis of the tubular reactor tubes through which passageway the effluent of step (a) flows counter-current to the gasses in the steam reformer tubes.

6. (Currently Amended) ~~The process of~~ Process according to claim 5, wherein the gas velocity in the passageway is between 10 m/s and 60 m/s.

7. (Currently Amended) ~~The process~~ Process according to any one of claims 5 ~~[-6]~~, wherein between 0 wt% and 60 wt% of the steam reformer product as obtained in step (b) and the effluent of step (a) flows through the passageway.

8. (Currently Amended) ~~The process~~ Process according to any one of claims 5 ~~[-7]~~, wherein the H<sub>2</sub>/CO hydrogen to carbon monoxide molar ratio of the combined synthesis gas product products of step (a) and (b) is between 1.5 and 3, ~~preferably between 1.9 and 2.3.~~

9. (Currently Amended) The process ~~Process according to any one of claims 5[[-8]],~~ wherein the steam to carbon molar ratio of the feed to step (b) is between 0.5 and 0.9.

10. (Currently Amended) The process of ~~Process according to claim 9,~~ wherein the reforming catalyst comprises (a) an oxidic support material and (b) a coating comprising between 0.1 wt% and 7.0 wt% of at least one of the metals of selected from the group consisting of Pt, Ni, Pd and Co, ~~preferably platinum;~~ said support material comprising: (i) at least 80 wt% of  $ZrO_2$  which has been calcined at a temperature up to about 670 °C before the application of said coating; and (ii) 0.5-10 mol% of at least one oxide selected from the group consisting of oxides of Y, La, Al, Ca, Ce and Si, ~~preferably  $La_2O_3$ .~~

11. (Currently Amended) The process ~~Process according to any one of claims 5[[-10]],~~ wherein the passageways of step(b) comprise metal wall surfaces and the temperature of the metal wall surfaces ~~of the passageways in step (b)~~ is maintained below 1100 °C.

12. (Currently Amended) The process ~~Process according to any one of claims 5[[-11]],~~ wherein the steam reforming product of step (b) is fed to step (a).

13. (Currently Amended) The process of ~~Process according to claim 12,~~ wherein the steam reforming product of step (b) is fed to the upper half of a partial oxidation reactor vessel having an upper end, said vessel provided with a burner at its upper end, and wherein the temperature in the upper half of the vessel is between 800°C to 1050°C.

14. (Currently Amended) The process ~~Process according to any one of claims 12[[-13]],~~ further comprising:

(c) autothermally reforming a ~~wherein the~~ mixture of the steam reformer product of step (b) and the product of the partial oxidation reaction of step (a) is ~~subjected to an autothermal reformer step (c).~~

15. (Currently Amended) The process ~~Process according to any one of claims 5~~[[14]], wherein hydrogen is recovered from the effluent of step (b).

16. (Currently Amended) The process ~~Process according to any one of claims 5~~[[15]], wherein step (b) is performed in the a reactor vessel for performing a steam reforming reaction comprising:  
a vessel inlet for natural gas and steam,  
a vessel inlet for a hot gaseous medium,  
a vessel outlet for a gaseous product comprising the steam reforming product; and  
a reactor space having a reactor space inlet and a reactor space outlet end, the reactor space comprising a bed of steam reforming catalyst, the reactor space inlet being fluidly connected to the inlet for natural gas and steam, and at the reactor space outlet end being fluidly connected with the outlet for the gaseous product;  
wherein inside the catalyst bed a passageway fluidly connects to the vessel inlet for the hot gaseous medium, the passageway being suitable for passage of hot gaseous mixture counter currently to a flow of reactants in the catalyst bed.  
~~according to any one of claims 1-4 of the present invention.~~